BASIS FOR THE AMENDMENT

Claims 35 and 38 have been canceled.

The limitations of Claims 35 and 38 have been included in Claims 28 and 33, respectively.

No new matter is believed to have been added by entry of this amendment. Entry and favorable reconsideration are respectfully requested.

Upon entry of this amendment Claims 7-26 and 28 and 33, 34, 36, 37, 39 will now be active in this application. Claims 24-26 stand withdrawn from further consideration.

REMARKS

Applicants wish to thank Examiner Dote for the helpful discussion on October 15, 2008.

It was discussed to include the limitations of Claim 35 in Claim 28; and to include the limitations of Claim 38 in Claim 33.

It was discussed that the Examiner considers Niimi'633 and Tamoto to be the closest prior art for Claim 28. The possibility of a comparison to Example 6 of Niimi and Examples 32 and 35 of Tamoto was discussed. These should be compared with examples within the scope of Claim 28.

Applicants respectfully request reconsideration of the application, as amended, in view of the following remarks.

The rejection of Claim 33 and claims dependent thereon over Ishii, Chambers, Tamura, JP '538, Ladd, synthesis example 1 of the specification and Hashimoto are obviated by the amendment of Claim 33. The limitations of Claim 38 have been included in Claim 33. Notably, Claim 38 was not rejected over the above references.

Further the obviousness type double patenting rejection of Claim 33 and claims dependent thereon, as well as Claim 28 and claims dependent thereon are obviated by the Terminal Disclaimer over US 7,354,686, filed herewith.

The Examiner is requested to withdraw the **provisional** double patenting rejection over Serial No. 10/656,280 if it is the only remaining rejection in the case. See MPEP 822.01. Notably, the present case (Serial No. 10/606,750) is the first filed case.

The present invention as set forth in **amended Claim 28** relates to a photoreceptor, comprising:

an electroconductive substrate;

a charge generation layer located overlying the electroconductive substrate with an intermediate layer therebetween; and

a charge transport layer formed overlying the charge generation layer using a non-halogenated solvent and comprising a charge transport material and a resin;

wherein the charge generation layer comprises

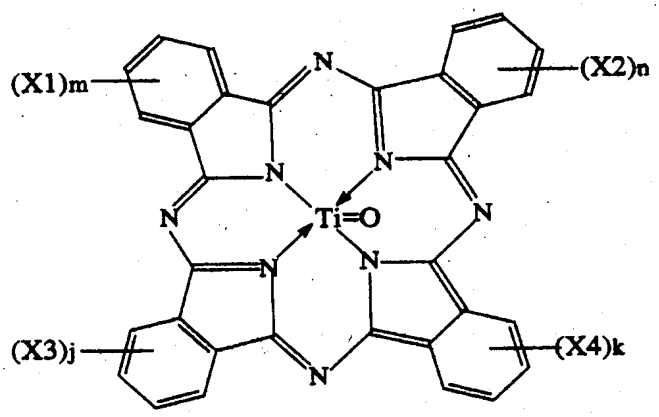
a polyvinyl acetal resin, and

a titanyl phthalocyanine, as charge generation material, having an average particle diameter less than a roughness of a surface of the intermediate layer, on which the charge generation layer is located,

wherein the titanyl phthalocyanine has an X-ray diffraction spectrum according to Figure 13 when a Cu-Kα X-ray having a wavelength of 1.542 Å is used;

wherein the average particle diameter of the charge generation material is not greater than 0.3 μm and not greater than 2/3 of the roughness of the surface of the intermediate layer; and

wherein said titanyl phthalocyanine is represented by formula (1)



(1)

wherein X1, X2, X3 and X4 independently represent a halogen atom, and m, n, j and k are 0;

wherein said polyvinyl acetal resin has a polymerization degree of from 500 to 5000 and a content of hydroxyl groups of from 25 to 40% by mole.

The rejections of the Claims over Niimi ('633), ACS File Registry, Chambers, Hashimoto, Takaya, Takaki, Yanus, Niimi ('654), Ueda, Sekisui, Tamura and Tamoto are traversed.

Niimi ('633), ACS File Registry, Chambers, Hashimoto, Takaya, Takaki, Yanus, Niimi ('654), Ueda, Sekisui, Tamura and Tamoto fail to disclose or suggest the claimed photoreceptor (Claim 28) and the superior properties of the claimed photoreceptors as set forth in the specification and the attached **Rule 132 Declaration**.

Most notably, with regard to Claim 28, Niimi ('633), ACS File Registry, Chambers, Hashimoto, Takaya, Takaki, Yanus, Niimi ('654), Ueda, Sekisui, Tamura and Tamoto fail to disclose or suggest a photoreceptor, comprising: **a charge generation layer located overlying the electroconductive substrate with an intermediate layer therebetween; a charge generation material having an average particle diameter less than a roughness of a surface of the intermediate layer, on which the charge generation layer is located; wherein the average particle diameter of the charge generation material is not greater than 0.3 μm and not greater than 2/3 of the roughness of the surface of either the electroconductive substrate or the intermediate layer;** wherein the charge generation material is a titanyl phthalocyanine; wherein the titanyl phthalocyanine has an X-ray diffraction spectrum according to Figure 13 when a Cu-Kα X-ray having a wavelength of 1.542 Å is used.

Further, in order to protect environment, it is desired not to use a halogenated solvent when a photoreceptor is produced, particularly when a charge transport layer is prepared (because a large amount of solvent is used for preparing a charge transport layer). The object of the present invention is to prepare a charge transport layer without using a halogenated solvent. If a halogenated solvent is merely replaced with a non-halogenated solvent, the resultant photoreceptor is inferior in characteristics (such as photosensitivity). The reason therefore is as follows.

When a charge transport layer coating liquid including a non-halogenated solvent is coated on a charge generation layer, the charge generation material therein aggregates due to the solvent and thereby the specific surface area of the charge generation material decreases. Therefore, the probability that the charge generation material contacts with the charge transport material decreases, resulting in deterioration of photo-carrier generation efficiency, i.e., deterioration of photosensitivity. Therefore, it is necessary to prevent occurrence of aggregation of the charge generation material to avoid the photosensitivity deterioration problem. This can be achieved by controlling the surface roughness of the intermediate layer and the particle size of the charge generation material, the charge generation material aggregation problem can be avoided.

In other words, only after the following four points are understood, the present invention can be made:

1) to use a non-halogenated solvent;

2) when a non-halogenated solvent is used for preparing a charge transport layer on a charge generation layer, the charge generation material aggregates;

3) when the charge generation material aggregates, the photosensitivity of the resultant photoreceptor deteriorates; and

4) by controlling the surface roughness and the particle size of charge generation material, the charge generation material aggregation problem can be avoided.

Since these points are not disclosed and suggested in Niimi ('633), ACS File Registry, Chambers, Hashimoto, Takaya, Takaki, Yanus, Niimi ('654), Ueda, Sekisui, Tamura and Tamoto the present invention is not obvious.

Specifically, there is no disclosure in these references that agglomeration of the charge generation layer can be avoided as disclosed at pages 17 and 18 of the specification.

There is also no disclosure of the superior results obtained in Examples 2 and 4 (with intermediate layer) of the present invention compared to the comparative data presented in the **attached Rule 132 Declaration**.

In the Declaration data for photoreceptor samples 1-9 are shown together with the photoreceptors of Examples 2 and 4 of the specification of the invention and Comparative Examples 3 and 5 of the specification of the invention. Ref. Examples 3, 4, 5 and 6 are according to the present invention. Comparative Ref. Examples 1-5 are comparative.

The evaluation results are shown in Tables 2-(2) and 2-(3) below copied from the Declaration.

Table 2-(2)

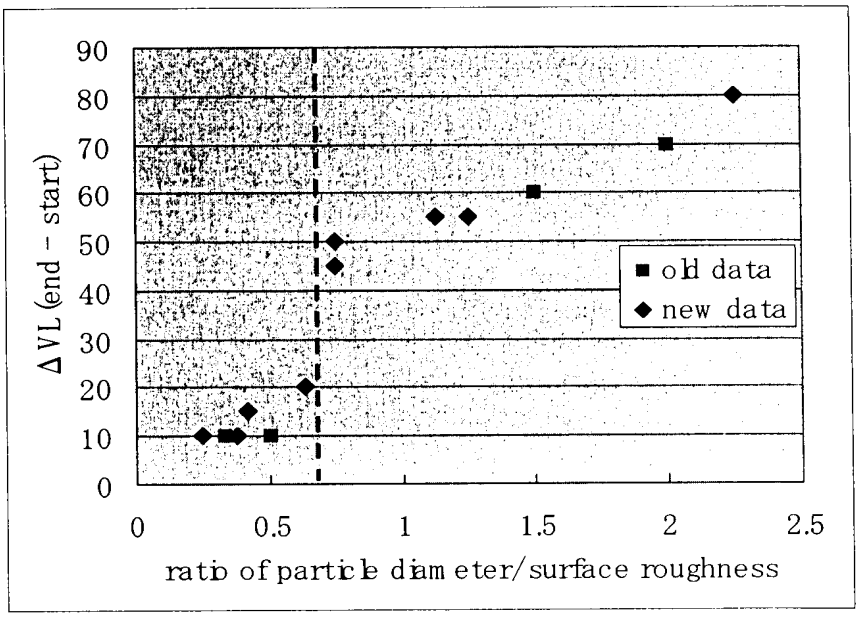
	Photo-receptor	Solvent of CTL coating liquid	Average particle diameter (APD) (μm)	Surface roughness (SR) (μm)	APD/SR*
Ex. 2	Ex. 2	THF	0.2	0.6	0.33
Ex. 4	Ex. 4	THF	0.2	0.4	0.5
Comp. Ex. 3	Comp. Ex. 3	THF	0.6	0.3	2.0
Comp. Ex. 5	Comp. Ex. 5	THF	0.6	-	-
					(≥6.0)
Ref. Ex. 3	Sample 1	THF	0.15	0.6	0.25
Ref. Ex. 4	Sample 2	THF	0.15	0.4	0.38
Comp. Ref. Ex. 1	Sample 5	THF	0.15	0.2	0.75
Ref. Ex. 5	Sample 3	THF	0.25	0.6	0.42
Ref. Ex. 6	Sample 4	THF	0.25	0.4	0.63
Comp. Ref. Ex. 2	Sample 6	THF	0.25	0.2	1.25
Comp. Ref. Ex. 3	Sample 7	THF	0.45	0.6	0.75
Comp. Ref. Ex. 4	Sample 8	THF	0.45	0.4	1.13
Comp. Ref. Ex. 5	Sample 9	THF	0.45	0.2	2.25

Table 2-(3)

	Photo-receptor	Image qualities		VL(-V)		ΔVL (VLe-VLs) (-V)
		Back-ground fouling	Image density	At the start of test (VLs)	At the end of test (VLe)	
Ex. 2	Ex. 2	O	O	85	95	10
Ex. 4	Ex. 4	O	O	95	105	10
Comp. Ex. 3	Comp. Ex. 3	X	X	100	170	70
Comp. Ex. 5	Comp. Ex. 5	X	X	120	180	60
Ref. Ex. 3	Sample 1	O	O	80	90	10
Ref. Ex. 4	Sample 2	O	O	85	95	10
Comp. Ref. Ex. 1	Sample 5	O	X	95	145	50
Ref. Ex. 5	Sample 3	O	O	100	115	15
Ref. Ex. 6	Sample 4	O	O	105	125	20
Comp. Ref. Ex. 2	Sample 6	O	X	105	160	55
Comp. Ref. Ex. 3	Sample 7	X	X	115	160	45
Comp. Ref. Ex. 4	Sample 8	X	X	120	175	55
Comp. Ref. Ex. 5	Sample 9	X	X	125	205	80

It is clear from Tables 2-(2) and 2-(3) that the image qualities and VL are closely related to the ratio of the average particle diameter to the surface roughness. The relationship between the ratio (i.e., average particle diameter / surface roughness) and ΔVL is illustrated in FIG. 17 below.

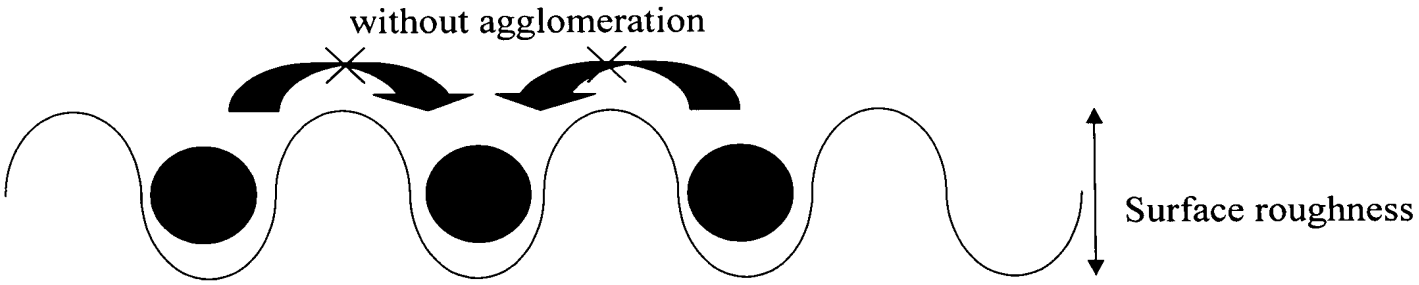
FIG. 17



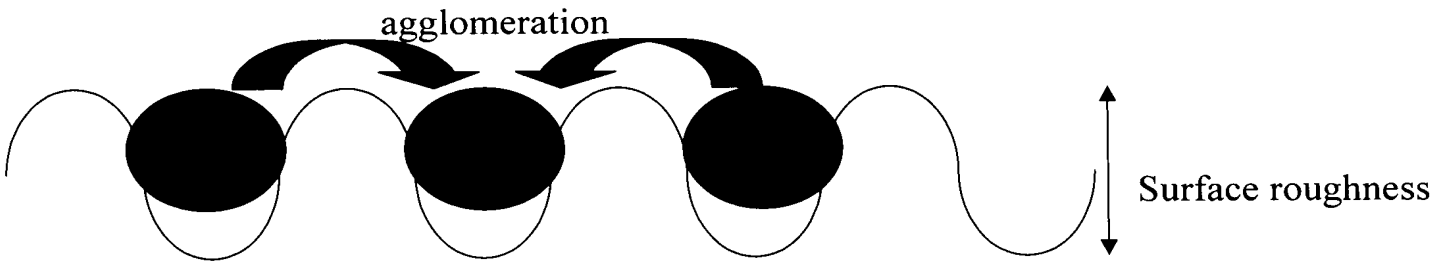
The vertical dotted line is drawn at a point where the ratio is 2/3. It is clear from FIG. 17 that when the ratio is greater than 2/3, the potential difference (ΔVL) rapidly increases.

The reason why such evaluation results are produced is considered to be as follows.

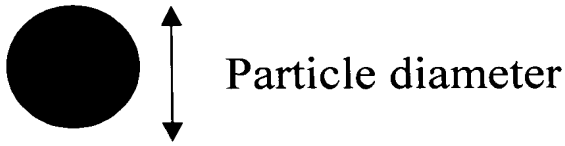
When the ratio is less than 2/3 (case 1, illustrated below), the particles of the pigment do not agglomerate. In contrast, when the ratio is greater than 2/3 (case 2, illustrated below), the particles of the pigment agglomerate.



Case1: Particle diameter/ Surface roughness < 2/3



Case2: Particle diameter/ Surface roughness >2/3



These superior results are not disclosed or suggested by Niimi ('633), ACS File Registry, Chambers, Hashimoto, Takaya, Takaki, Yanus, Niimi ('654), Ueda, Sekisui, Tamura and Tamoto.

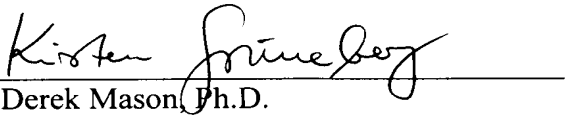
Therefore, the rejections of the Claims over Niimi ('633), ACS File Registry, Chambers, Hashimoto, Takaya, Takaki, Yanus, Niimi ('654), Ueda, Sekisui, Tamura and

Tamoto are believed to be unsustainable as the present invention is neither anticipated nor obvious and withdrawal of these rejections is respectfully requested.

This application presents allowable subject matter, and the Examiner is kindly requested to pass it to issue. Should the Examiner have any questions regarding the claims or otherwise wish to discuss this case, he is kindly invited to contact Applicants' below-signed representative, who would be happy to provide any assistance deemed necessary in speeding this application to allowance.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



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